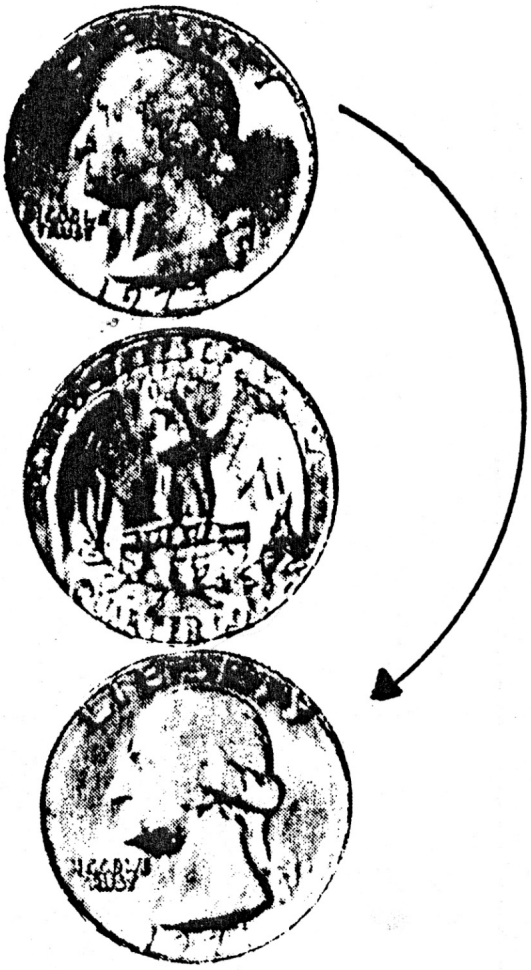
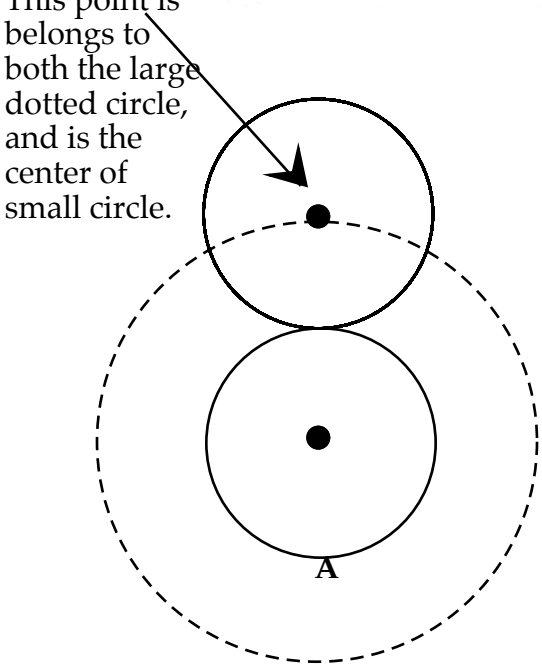
What's with the rotating quarter?





Suppose the diameter of the quarters is ***d***.

Then, each quarter's circumference is $\mathbf{d\pi}$.

But look at the center of the top quarter that is being rotated, It is producing a circle whose diameter is $\mathbf{2}\boldsymbol{d}$, so this large circle's circumference is $\mathbf{2d\pi}$. When the rotating quarter reaches point A it has gone a distance of $\boldsymbol{d\pi}$, a complete revolution.